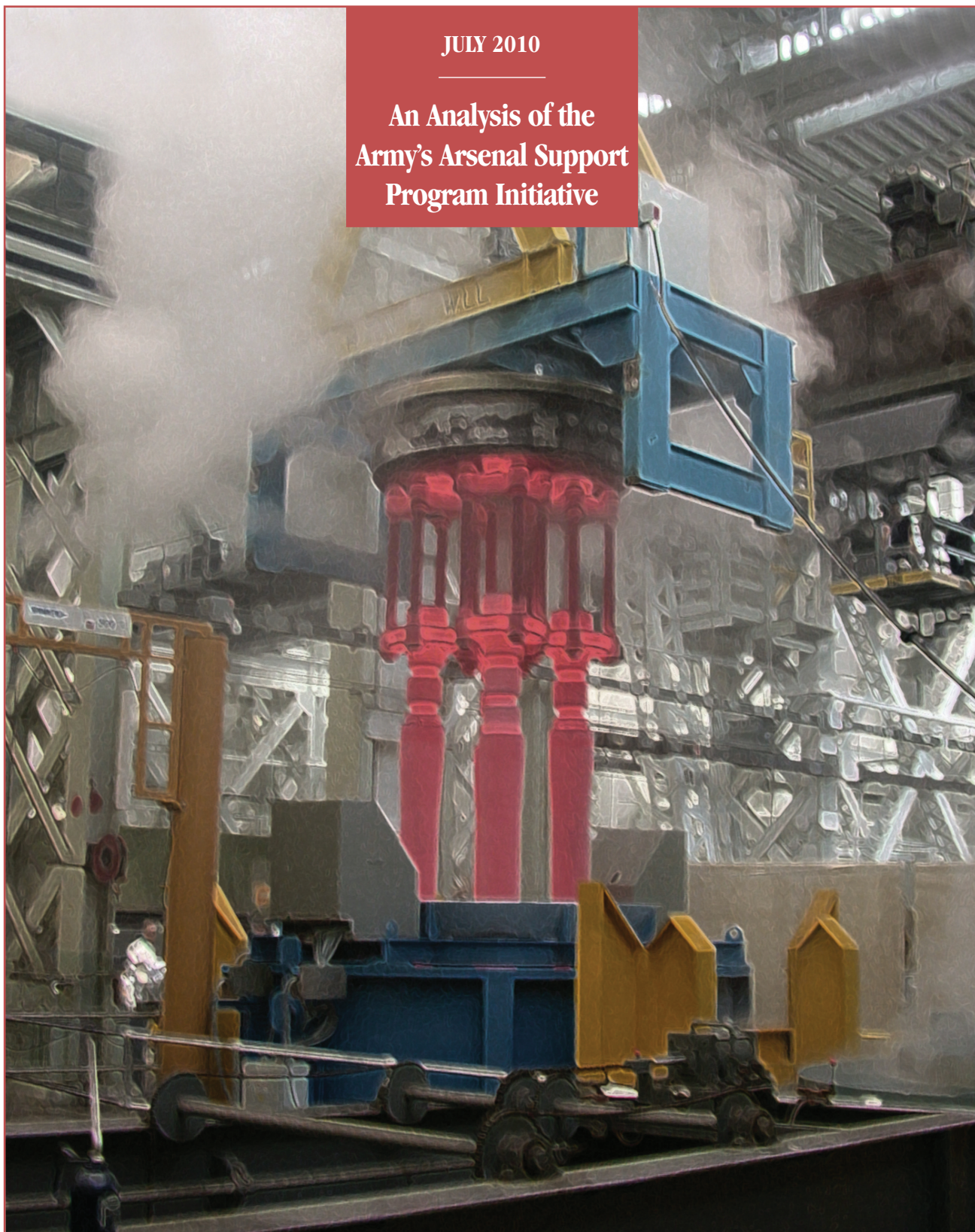


CONGRESS OF THE UNITED STATES  
CONGRESSIONAL BUDGET OFFICE

A  
**CBO**  
REPORT

JULY 2010

An Analysis of the  
Army's Arsenal Support  
Program Initiative



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# **An Analysis of the Army's Arsenal Support Program Initiative**

July 2010



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## **Note**

The cover photograph, which depicts the testing of a new Vertical Heat Treatment Facility at the Watervliet Arsenal in New York, is provided courtesy of the U.S. Army.

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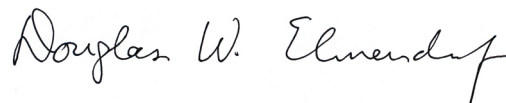
## Preface

**T**he Congress created the Arsenal Support Program Initiative (ASPI) to help maintain the functional capabilities of the Army's three manufacturing arsenals, which are located in Rock Island, Illinois, Watervliet, New York, and Pine Bluff, Arkansas. A primary goal of the program is to enable commercial firms to lease vacant space at the arsenals once that space has been renovated, thereby encouraging collaboration between the Army and commercial firms as well as reducing the costs the government incurs to operate and maintain the arsenal facilities. Since the ASPI's inception, a number of commercial tenants have leased unused property at the arsenals; however, the financial benefits that the program has generated for the government have proved to be small relative to the program's funding.

In response to a directive from the Congress, the Congressional Budget Office (CBO) conducted a "business case" analysis of the ASPI, examining the program's costs, return on investment, and economic impact. In keeping with CBO's mandate to provide objective, nonpartisan analysis, this report makes no recommendations.

Daniel Frisk of CBO's National Security Division prepared the report under the supervision of Matthew Goldberg. Alec Johnson assisted with fact checking the document. Robert Dennis, Deborah Lucas, William Randolph, and Jason Wheelock of CBO provided helpful comments, as did Larry Schwartz, an independent consultant. (The assistance of external reviewers implies no responsibility for the final product, which rests solely with CBO.)

Loretta Lettner edited the report, and Kate Kelly proofread it. Cindy Cleveland produced early drafts of the manuscript. Maureen Costantino designed the cover and prepared the document for publication. Monte Ruffin oversaw the printing of the report, Linda Schimmel handled the print distribution, and Simone Thomas prepared the electronic version for CBO's Web site ([www.cbo.gov](http://www.cbo.gov)).



Douglas W. Elmendorf  
Director

July 2010





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# An Analysis of the Army's Arsenal Support Program Initiative

## Summary and Introduction

The Congress created the Arsenal Support Program Initiative (ASPI) in 2001 to help maintain the viability of the Army's three manufacturing arsenals. Owned and operated by the federal government, those arsenals—which are located in Rock Island, Illinois, Watervliet, New York, and Pine Bluff, Arkansas—provide a variety of services, including the manufacture, renovation, and demilitarization of weapons and other equipment. The broad intent of the ASPI is to encourage collaboration between the Army and commercial firms to preserve the arsenals' capabilities and to reduce the costs to the government of operating and maintaining those arsenals. Originally established as a two-year demonstration program, the ASPI has subsequently been extended through a series of National Defense Authorization Acts.<sup>1</sup> The program is currently scheduled to expire at the end of 2011.

The principal outcome of the ASPI to date is that commercial tenants have begun to lease unused property at the arsenals, typically vacant buildings or portions of buildings that the Army has renovated specifically for that purpose. Tenants compensate the arsenals mostly in the form of negotiated rental payments or services in lieu of rent. As of 2009, a total of 46 tenants were leasing more than 200,000 square feet of space at the arsenals under the ASPI.

In recent years, however, policymakers have expressed concern that the ASPI is not fulfilling its objectives. In the conference report that accompanied the National Defense Authorization Act for Fiscal Year 2008, legislators noted that receipts generated by the ASPI to that point were small relative to funding provided for the program; they also stated that the program was not clearly bolstering the arsenals' core missions.<sup>2</sup> As a result of those concerns, the Congress directed the Congressional Budget Office (CBO) to conduct a "business case" analysis of the ASPI. In response to that directive, CBO examined the costs, return on investment, and economic impact of the program; those findings are presented in this report. The Congress also directed the Government Accountability Office (GAO) to investigate how effectively the ASPI was fulfilling its objectives and to provide recommendations on restructuring the program to support the arsenals' core missions. GAO's findings appear in a separate report that was released in November 2009.<sup>3</sup>

Although the Department of Defense (DoD) has not requested any funding for the ASPI in its annual budget submissions, the ASPI has received more than \$87 million in funding from its inception in 2001 through 2010. As of the end of 2009, a total of \$69 million had been

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1. Section 343 of the Floyd D. Spence National Defense Authorization Act for Fiscal Year 2001 (Public Law 106-398, 114 Stat. 1654A-65) established the Arsenal Support Program Initiative. The National Defense Authorization Acts for 2003, 2005, 2008, and 2010 extended the ASPI (Public Laws 107-314, 108-375, 110-181, and 111-84).

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2. U.S. House of Representatives, *National Defense Authorization Act for Fiscal Year 2008: Conference Report to Accompany H.R. 1585*, House Report 110-477 (December 6, 2007), pp. 881–882. A conference report is the end result of negotiations between specially appointed Members of the House and Senate who meet to reconcile differences in legislation passed by both chambers. House Report 110-477 describes and discusses the legislation in the form in which it was ultimately enacted.

3. Government Accountability Office, *Defense Infrastructure: The Army Needs to Establish Priorities, Goals, and Performance Measures for Its Arsenal Support Program Initiative*, GAO-10-167R (November 5, 2009).

obligated for the program and, of that amount, \$54 million had been disbursed.<sup>4</sup> Over 90 percent of the obligations made for the program have been for the purpose of renovating and improving arsenal properties and infrastructure, CBO estimates. Funding for the ASPI is not used to pay employees who work for the office that manages the program; those costs are paid out of the Army's operation and maintenance account.<sup>5</sup>

To determine the financial impact of the ASPI on the federal government, CBO first estimated the receipts and other financial benefits that the program has generated for the government so far and those that might be generated in the future. CBO then calculated the present value of those cash flows using a discount rate that attaches a market price to the risk associated with those flows. That present value can be compared to the present value of the governmental outlays needed to make space available to tenants.

Under the assumptions that the ASPI will receive no additional appropriations for renovations after 2010 and that the government will continue to pay for marketing and administering the program, CBO estimates that, measured in 2010 dollars, the present value of outlays for the program through 2075 is \$99 million and the present value of the financial benefits that the program will generate for the government is \$47 million. The resulting net present value is negative \$52 million, meaning that the total stream of financial benefits that the ASPI has generated for the government so far and can be expected to generate in the future will fall short of the up-front investment required to ready the arsenal properties for tenants. That estimate translates into a government subsidy for the program of about 50 cents for every dollar spent.

Should the Congress provide further funding for renovations after 2010, each additional 100,000 square feet of

space that the Army renovated under the ASPI would cost about \$16 million in 2010 dollars, CBO estimates. At a subsidy of about 50 cents for every dollar spent, that spending would result in a net cost to the government of about \$8 million.

In terms of the program's broader economic impact, the ASPI positively affects the local economies in the arsenal regions in two ways: Government spending for the program probably leads to additional jobs for civilians and income for area businesses; and commercial tenants who relocate to the arsenal regions because of the program buttress economic activity in the area. However, because of a number of uncertainties, CBO could not reliably quantify the positive economic impact of the ASPI within the arsenal regions.

On a national basis, the ASPI has had little if any net economic impact, in CBO's judgment, because the program primarily causes shifts in resources from one region of the country to another. It is possible that the government's spending for the ASPI has simply displaced appropriations that would have been made for other purposes within the federal budget, in which case any net impact on the economy would have been minimal. Alternatively, even if the spending added to federal deficits, the economy was operating at or near capacity during much of the program's existence. To keep inflation in check under those circumstances, the Federal Reserve generally takes into account information about the government's spending when it makes decisions about interest rates, with the intention of offsetting the impact on the economy of short-term fluctuations in such spending. As a result, additional government spending under those circumstances would not produce sustained increases in overall economic activity and employment. In addition, nearly all of the tenants currently leasing space at the arsenals were already located in the United States before they decided to participate in the program. Although the relocation of those tenants probably created an economic gain in the arsenal regions, it also probably resulted in an economic loss in the regions in which the tenants were previously located.

## Overview of the ASPI

The core mission of the Army's arsenals is to support military operations by manufacturing, renovating, and demilitarizing defense-related materiel and components. According to the Army, the manufacturing arsenals at

4. Appropriations provide authority for a federal program to incur obligations and make payments from the Treasury. Obligations are legally binding commitments by the federal government that will result in outlays, immediately or in the future. Outlays are disbursements from the U.S. Treasury to pay federal obligations.
5. Currently, the Tank-Automotive and Armaments-Life Cycle Management Command, a subordinate command of the Army Materiel Command, oversees activities related to the ASPI. Those operations are managed from a program office located at the Rock Island Arsenal.

Rock Island, Watervliet, and Pine Bluff provide some important capabilities that are not readily available elsewhere.<sup>6</sup> For example, the Rock Island Arsenal houses the Army's only foundry and a fully equipped shop for manufacturing prototypes of various weapons and weapon components; the Watervliet Arsenal is the Army's only manufacturer of large-caliber cannons; and the Pine Bluff Arsenal is the Army's sole facility for repairing or rebuilding certain masks and breathing apparatuses.<sup>7</sup>

Although the ASPI is funded directly through appropriations, funding for day-to-day operations at the arsenals themselves is provided through the Industrial Operations activity group of the Army's Working Capital Fund. (Components of the Army receive appropriations for their operations, place orders with the arsenal for equipment or services, and transfer the necessary funds to the Working Capital Fund. The funds are then used to cover the costs incurred by the arsenals in filling those orders.)

### Objectives of the ASPI

The stated intent of the ASPI is to preserve the capabilities of the arsenals' skilled workforces and specialized equipment by fostering government collaboration with commercial firms. The program was created during a period when workloads at the arsenals were declining because of the downsizing of the armed services following the end of the Cold War. In spite of a surge in activity related to the wars in Iraq and Afghanistan, the arsenals still have a substantial amount of underutilized or idle space. In its 2005 report to DoD's Base Closure and Realignment Commission, the Army indicated that more than 80 percent of the space designated for armament production at the arsenals was excess.<sup>8</sup>

When the ASPI was established in 2001, the Congress enumerated 11 goals that the demonstration program was meant to achieve. As stated in the National Defense Authorization Act for Fiscal Year 2001, those goals (which the Congress did not prioritize) are as follows:

- To provide for the utilization of the existing skilled workforce at the Army manufacturing arsenals by commercial firms.
- To provide for the reemployment and retraining of skilled workers who, as a result of declining workload and reduced Army spending on arsenal production requirements at these Army arsenals, are idled or underemployed.
- To encourage commercial firms, to the maximum extent practicable, to use these Army arsenals for commercial purposes.
- To increase the opportunities for small businesses (including socially and economically disadvantaged small business concerns and new small businesses) to use these Army arsenals for those purposes.
- To maintain in the United States a workforce having the skills in manufacturing processes that are necessary to meet industrial emergency planned requirements for national security purposes.
- To demonstrate innovative business practices, to support Department of Defense acquisition reform, and to serve as both a model and a laboratory for future defense conversion initiatives of the Department of Defense.
- To the maximum extent practicable, to allow the operation of these Army arsenals to be rapidly responsive to the forces of free-market competition.
- To reduce or eliminate the cost of government ownership of these Army arsenals, including the costs of operations and maintenance, the costs of environmental remediation, and other costs.
- To reduce the cost of products of the Department of Defense produced at these Army arsenals.

6. CBO did not address the cost-effectiveness of the arsenals or whether the Army should continue to operate arsenals or rely on the private sector to provide those products and services. For a discussion of that issue, see W. Michael Hix and others, *Rethinking Governance of the Army's Arsenals and Ammunition Plants* (Santa Monica, Calif.: RAND, 2003).

7. For more information on the Army's manufacturing arsenals' missions and capabilities, refer to *The Metal Book* published by the Army Materiel Command, and the Army Working Capital Fund's budget justification material.

8. Department of Defense Report to the Defense Base Closure and Realignment Commission, *Department of the Army Analysis and Recommendations, BRAC 2005, Volume III* (May 2005), pp. A87–A88.

- To leverage private investment at these Army arsenals through long-term facility use contracts, property management contracts, leases, or other agreements that support and advance the demonstration program for the following activities:
  - Recapitalization of plant and equipment;
  - Environmental remediation;
  - Promotion of commercial business ventures; and
  - Other activities approved by the Secretary of the Army.
- To foster cooperation between the Department of the Army, property managers, commercial interests, and state and local agencies in the implementation of sustainable development strategies and investment in these Army arsenals.

CBO's analysis focuses on the budgetary, financial, and economic aspects of the ASPI. CBO did not assess how well the ASPI was fulfilling its other objectives; that analysis was conducted by GAO, and the agency's findings were published in its November 2009 report.<sup>9</sup>

The ASPI is similar in concept to the Armament, Retooling, and Manufacturing Support (ARMS) program. Created by the Congress in 1992, the ARMS program encourages businesses to use the Army's ammunition plants and depots for commercial purposes.<sup>10</sup> Those facilities, which manufacture, store, and demilitarize conventional ammunition, are owned by the government but operated by contractors (unlike the arsenal properties, which are both owned and operated by the government). Under the ARMS arrangement, the contractor managing the facility is authorized to use idle property for commercial tenants, reducing the government's costs of owning those facilities. CBO did not examine the costs, receipts, or economic impact associated with the ARMS program.

### Main Accomplishment of the ASPI to Date

To date, the principal outcome of the ASPI has been the rental of unused arsenal property to commercial tenants.

9. Government Accountability Office, *Defense Infrastructure: The Army Needs to Establish Priorities, Goals, and Performance Measures for Its Arsenal Support Program Initiative*.

10. Section 1097 of the National Defense Authorization Act for Fiscal Year 1993 (P.L. 102-484) established the ARMS program.

Arsenal commanders have identified vacant buildings or vacant portions of buildings that were made available for the program. Typically, those spaces required major renovation before they could be leased. Since the program's inception, the Army has identified nearly 1 million square feet of space at the Rock Island and Watervliet Arsenals that could be used by commercial tenants (see Table 1). That space could be used as administrative offices, manufacturing facilities, storage facilities (heated or unheated), laboratories, or "clean rooms."<sup>11</sup> The Pine Bluff Arsenal, which has participated in the ASPI just minimally, currently leases out rail yard space only.

As of 2009, more than 200,000 square feet of space at the Rock Island and Watervliet Arsenals had been renovated and occupied by commercial tenants. The square footage available for lease under the ASPI will almost double once renovations that were under way in 2009 are complete. In addition, the arsenals have other underutilized and vacant space that has not been renovated but could be used for the ASPI: The Watervliet Arsenal has about 16,000 additional square feet that would require renovation, and the Rock Island Arsenal has almost 500,000 additional square feet of such space.

The Rock Island and Watervliet Arsenals each use a contracted, nonprofit development group to solicit and manage commercial tenants.<sup>12</sup> Under those "site manager" contracts, the development groups are responsible for advertising properties, negotiating lease terms, and overseeing renovations and upgrades (which often are made to future tenants' specifications). Officials at the ASPI administrative office in Rock Island and the installation commander at each arsenal review tenants' proposals on the basis of an established set of criteria and make the final decision on accepting tenants.<sup>13</sup> The development groups conduct the day-to-day management of the leased properties and collect tenants' rental payments. The Pine Bluff Arsenal does not use a contractor to attract or manage tenants.

11. Clean rooms, typically used for manufacturing or scientific research, are designed to allow the infiltration of only small concentrations of contaminants, such as dust and bacteria.

12. Presently, the site manager contracts at the arsenals in Rock Island, Illinois, and Watervliet, New York, are held by the Rock Island Development Group and the Arsenal Business and Technology Partnership, respectively.

13. For an outline of the process for reviewing tenant applications, see the *Arsenal Support Initiative Program: Implementation Plan*, Revision 2 (June 2008).

**Table 1.****Status of the Property Available Under the ASPI as of the Summer of 2009**

	Type of Arsenal Space				Total
	Administrative	Manufacturing	Storage (Heated and Unheated)	Laboratories or "Clean Rooms" <sup>1a</sup>	
Rock Island, Illinois					
Occupied	55	2	47	0	107
Under Renovation (With prospective tenant)	10	72	0	0	82
Under Renovation (No prospective tenant)	13	0	33	0	45
Vacant and Ready for Occupancy	0	0	0	0	0
Vacant but Needs Renovation	<u>0</u>	<u>0</u>	<u>493</u> <sup>b</sup>	<u>0</u>	<u>493</u>
Subtotal, Rock Island Arsenal	78	74	575 <sup>b</sup>	0	728
Watervliet, New York					
Occupied	36	49	25	17	127
Under Renovation (With prospective tenant)	0	92	0	0	92
Under Renovation (No prospective tenant)	0	0	0	0	0
Vacant and Ready for Occupancy	2	0	3	0	4
Vacant but Needs Renovation	<u>15</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>16</u>
Subtotal, Watervliet Arsenal	52	142	28	17	239
<b>Total</b>	<b>131</b>	<b>216</b>	<b>603</b> <sup>b</sup>	<b>17</b>	<b>967</b>

Source: Congressional Budget Office based on data from the Rock Island Development Group and the Arsenal Business and Technology Partnership.

Notes: The arsenals in Rock Island, Illinois, and Watervliet, New York, use contracted nonprofit development groups to market space that is available for lease and to manage commercial tenants.

The arsenal in Pine Bluff, Arkansas, currently leases rail-yard space only and therefore is not included in this table.

ASPI = Arsenal Support Program Initiative.

- a. "Clean rooms," typically used for manufacturing or scientific research, are designed to limit contaminants, such as bacteria and dust.
- b. All vacant space in need of renovation at the arsenal in Rock Island, Illinois, is classified as "storage" but could be converted to serve other purposes during the renovation process.



**Table 2.**  
**Number of Commercial Tenants and Tenants’ Employees Working at Arsenals Under the ASPI, 2001 to 2009**

	2001	2002	2003	2004	2005	2006	2007	2008	2009
<b>Number of Commercial Tenants</b>									
Rock Island, Illinois	0	2	8	12	11	17	20	22	27
Watervliet, New York	1	2	5	7	10	17	17	17	18
Pine Bluff, Arkansas	0	1	2	3	2	1	1	1	1
<b>Total Tenants</b>	<b>1</b>	<b>5</b>	<b>15</b>	<b>22</b>	<b>23</b>	<b>35</b>	<b>38</b>	<b>40</b>	<b>46</b>
<b>Number of Tenants' Employees</b>									
Rock Island, Illinois	0	9	26	47	40	186	461	275	346
Watervliet, New York	3	36	50	70	109	143	205	215	230
Pine Bluff, Arkansas	0	0	6	8	5	3	3	2	3
<b>Total Employees</b>	<b>3</b>	<b>45</b>	<b>82</b>	<b>125</b>	<b>154</b>	<b>332</b>	<b>669</b>	<b>492</b>	<b>579</b>

Source: Congressional Budget Office based on data from the office that administers the ASPI.

Notes: The category “tenants’ employees” includes both full-time and part-time employees working for commercial tenants at the arsenal properties but excludes employees working for tenants under the Intergovernmental Personnel Act Mobility Program. That program provides for the temporary assignment of federal employees to other organizations to facilitate cooperation between federal and nonfederal entities.

The commercial tenants participating in the ASPI represent a variety of industries, including data processing, manufacturing, engineering, and software development.

ASPI = Arsenal Support Program Initiative.

From 2001 to 2009, the number of commercial tenants increased each year, reaching 46 in 2009 (see Table 2). (Over that period, a total of 63 commercial tenants participated in the program, but some no longer lease property at the arsenals.) Similarly, the number of employees working for commercial tenants at the arsenals has grown from the single digits to the hundreds. (The count of tenants’ employees includes part-time and seasonal workers.) In a few instances, tenants leased storage space at the arsenals that did not require any employees to be present.

The commercial tenants participating in the ASPI represent a variety of industries, including data processing, manufacturing, engineering, and software development. Additionally, circumstances specific to the Rock Island and Watervliet Arsenals have led to a concentration of tenants in specific lines of business. About half of the tenants at the Rock Island Arsenal work as contractors for DoD, according to CBO’s estimates. A number of

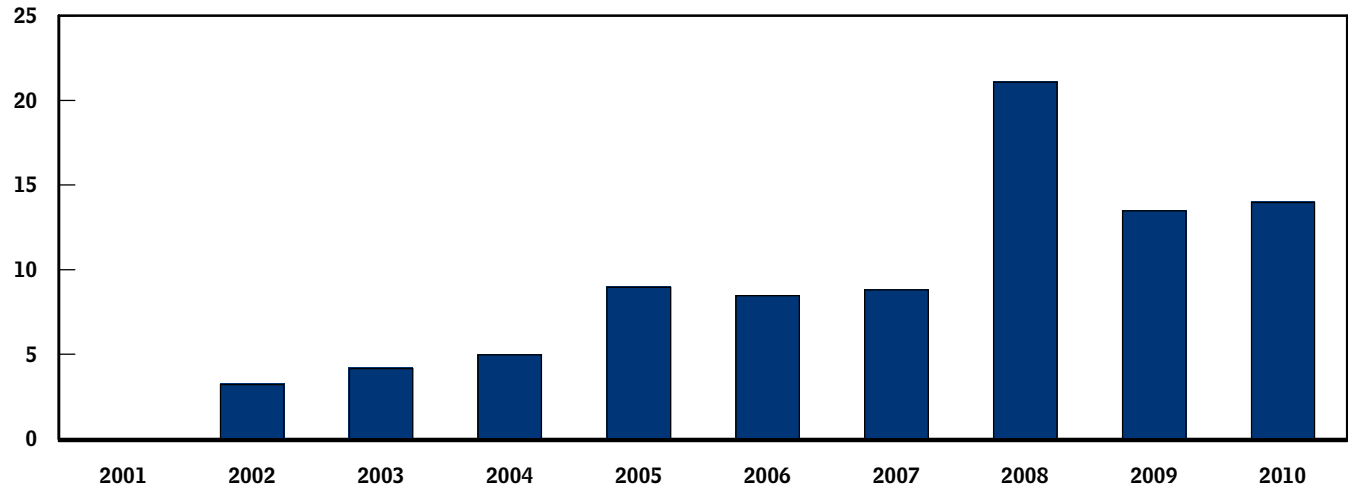
Army contracting offices—including the Joint Munitions Command, the Army Field Support Command, and the Tank-Automotive and Armaments Command Integrated Logistics Support Center—maintain headquarters or offices at the Rock Island Arsenal, making it an attractive location for defense contractors. At the Watervliet Arsenal, a handful of tenants are involved in the field of nanotechnology. The Watervliet region has a notable presence in the nanotechnology industry, bolstered by the College of Nanoscale Science and Engineering of the State University of New York at Albany and other nearby universities.

### Funding Provided to the ASPI and Related Program Costs

From 2002 through 2010, the Arsenal Support Program Initiative received a total of \$87.4 million in appropriations (see Figure 1 and Table 3). More than half of that

**Figure 1.****Funding for the ASPI, 2001 to 2010**

(Millions of dollars)



Source: Congressional Budget Office.

Notes: Excludes \$4.2 million in funding provided in 2009 for equipment at the Rock Island Joint Manufacturing and Technology Center.

ASPI = Arsenal Support Program Initiative.

funding was provided in the past three years. Although no funding for the ASPI was provided in 2001, the year of the program's inception, commercial tenants first started leasing arsenal property that year.

All financial support for the ASPI has been the result of funding included in appropriation bills for the Department of Defense.<sup>14</sup> Although the Army has requested funding for the ARMS program in its annual budget submissions, it has not requested funding for the ASPI. With two exceptions—occurring in 2002 and 2004—the Congress directed that funds within the Army's account for procurement of weapons-tracked combat vehicles (WTCV) be used for the ASPI. In 2002, the Congress made \$7.5 million from the Army's account for operation and maintenance available for the program. (According to the office that manages operations for the ASPI, \$3.2 million of that funding was allocated to the program.) In 2004, the Congress directed that \$1.5 million from the Army's procurement account for ammunition and \$3.5 million from the Army's procurement account for WTCV be used for the ASPI. In 2006, the Congress

began directing funds to specific arsenals, rather than to the program as a whole.

As of the end of 2009, \$69 million of the \$87 million in funding for the ASPI had been obligated (that is, binding agreements to purchase items or services had been entered into), and, of that amount, \$54 million had been spent (see Figure 2). Some \$63.5 million—more than 90 percent—of the obligated funds was allocated for renovations and capital improvements to prepare arsenal properties for commercial tenants (see Table 4 on page 10). Of the properties made available for lease over that period, some required substantial investments in renovations and capital improvements before the space could be occupied. In certain cases, environmental remediation, such as the removal of pollutants or toxins from buildings, was necessary before renovations could begin. The remaining obligations were allocated for marketing the arsenal properties to prospective tenants and for administrative and miscellaneous expenditures (for instance, to prepare various documents, such as annual reports on the program, master plans, and feasibility studies).<sup>15</sup> Administering the ASPI requires the full-time effort of one

14. The final funding amounts are listed in the conference reports for Public Laws 107-248, 108-87, 108-287, 109-148, 109-289, 110-116, and 111-118.

15. The Rock Island Development Group and the Arsenal Business and Technology Partnership both maintain Web sites that advertise properties available under the ASPI.

**Table 3.****Appropriations for the ASPI, 2002 to 2010**

(Millions of dollars)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total, 2002- 2010
Rock Island, Illinois	0	0	0	0	5.5	5.9	11.5	8.5 <sup>b</sup>	7.6	39.0
Watervliet, New York	0	0	0	0	3.0	3.0	9.6	5.0	6.4	27.0
Pine Bluff, Arkansas	0	0	0	0	0	0	0	0	0	0
Not Specified	3.2 <sup>a</sup>	4.2	5.0	9.0	0	0	0	0	0	21.4
<b>Total</b>	<b>3.2 <sup>a</sup></b>	<b>4.2</b>	<b>5.0</b>	<b>9.0</b>	<b>8.5</b>	<b>8.9</b>	<b>21.1</b>	<b>13.5 <sup>b</sup></b>	<b>14.0</b>	<b>87.4 <sup>a</sup></b>

Source: Congressional Budget Office.

Note: ASPI = Arsenal Support Program Initiative.

- a. In 2002, the Congress directed that \$7.5 million in the Army's operation and maintenance account be made available for the ASPI. According to the office that oversees the ASPI, the program received \$3.2 million of that funding.
- b. Excludes \$4.2 million in funding that the Congress directed be used for equipment for the Rock Island Joint Manufacturing and Technology Center.

civilian Army employee as well as the part-time effort of several other civilian Army employees. The costs of those employees' salaries and benefits are not funded by the program but through the Army's account for operation and maintenance. Assigning those personnel to the ASPI creates an opportunity cost for the Army, as the skills of those workers could be redirected to other tasks.

### Financial Impact of the ASPI on the Federal Government

To calculate the financial impact of the ASPI on the federal government, CBO first estimated the receipts and other financial benefits that the program has generated for the government so far and those that might be generated in the future. CBO then compared the present value of those receipts and benefits to the outlays required to make space available to tenants. The resulting difference is the estimated cost to the government of subsidizing the program, which, expressed as a subsidy rate, measures the cost per dollar invested in the arsenal facilities.

#### Historical Receipts and Other Financial Benefits

One rationale for creating the ASPI was to reduce the cost to the government of operating and maintaining Army arsenals. The program has generated receipts and other financial benefits for the government from the following sources:

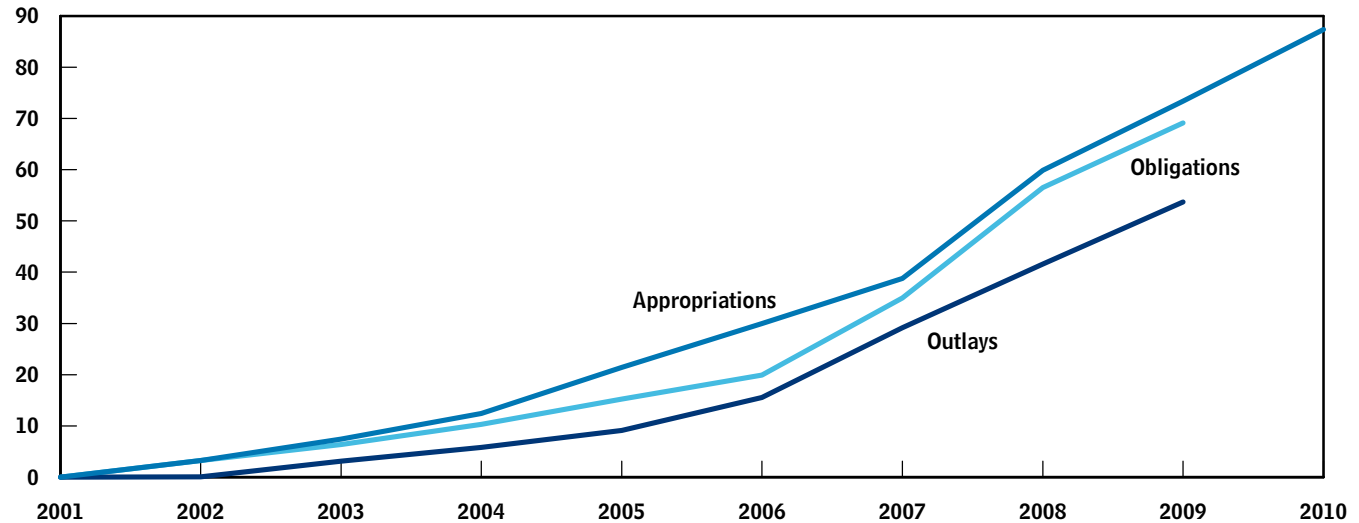
- Rental payments from commercial tenants who lease arsenal property;
- Services provided by tenants in lieu of rent;
- Investments by tenants in infrastructure at the arsenals;
- Fees paid by tenants to hire government employees under the Intergovernmental Personnel Act Mobility Program;<sup>16</sup> and
- Fees paid by tenants for renting arsenal machinery and equipment.

According to data collected by a contractor that the ASPI administrative office commissioned, the program generated \$6.6 million in receipts and other financial benefits for the government from 2001 through 2009 (see Table 5 on page 11). The Watervliet Arsenal generated about half of that amount, the Rock Island Arsenal produced about 30 percent, and the Pine Bluff Arsenal accounted for the remaining 20 percent

16. To facilitate cooperation between the federal government and nonfederal entities, the Intergovernmental Personnel Act Mobility Program provides for the temporary assignment of federal employees to other organizations.

**Figure 2.****Cumulative Appropriations, Obligations, and Outlays for the ASPI, 2001 to 2010**

(Millions of dollars)



Source: Congressional Budget Office based on data from the office that administers the ASPI.

Notes: Data on obligations and outlays for 2010 will not be available until the end of the fiscal year.

ASPI = Arsenal Support Program Initiative.

(see Figure 3 on page 12). The value of the receipts and other benefits grew from \$0.4 million in 2001 to \$1.3 million in 2009, roughly corresponding with the growth in the number of tenants leasing space at the arsenals.

The payments that tenants have made to lease space at the arsenals represent the largest financial benefit the ASPI has generated, totaling almost \$4.0 million through 2009 (net of certain expenses). Nearly all tenants compensate the arsenals by paying rent, and total payments have grown since the start of the program. Rental rates per square foot vary on the basis of the type of property rented (such as administrative, manufacturing, or storage) and are reported by the Army to be comparable with the local market rates for similar properties.<sup>17</sup> At the Pine Bluff Arsenal, tenants pay the arsenal directly. At the Rock Island and Watervliet Arsenals, tenants pay an agreed rate to the arsenal development groups; the development groups retain about \$1 per square foot and pass the remaining payment on to the arsenals. The funds

received by the arsenals are, in turn, deposited into their respective working capital funds.

When estimating the financial benefits that rental payments generate, the contractor commissioned by the ASPI's administrative office takes into account the additional expenses the arsenals incur to maintain properties for commercial tenants. For example, filling previously vacant spaces with tenants may require an arsenal to pay more for items such as groundskeeping, janitorial services, and utilities. The contractor calculates those additional costs and deducts them from the gross rental payments made by tenants.

The other significant sources of financial benefits that accrue to the government under the ASPI are the services and infrastructure improvements that tenants provide; together those services and improvements provided nearly \$2.2 million in benefits to the government between 2001 and 2009.<sup>18</sup> A few tenants have provided services to the arsenals, such as certain types of vocational training, in lieu of paying rent. The contractor commissioned by the ASPI's managing office estimated the value

17. See the *Arsenal Support Initiative Program: Implementation Plan*. Rental rates are reviewed annually, but adjustments have been infrequent, according to the office that manages ASPI operations.

18. Data on services and investments provided by tenants were combined prior to 2005.

**Table 4.****Funds Obligated for the ASPI, by Type of Spending, 2001 to 2009**

(Millions of dollars)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	Total, 2001–2009
Renovations and Capital Improvements	0	3.2	2.4	3.0	4.5	4.5	14.7	19.7	11.6	63.5
Administration and Miscellaneous <sup>a</sup>	0	0	0.6	0.8	*	0.1	0.3	1.2	0.5	3.4
Marketing	0	0	0.2	0.2	0.3	0.1	0.1	0.4	0.1	1.3
Environmental Remediation <sup>b</sup>	0	0	0	0	0.1	*	0	0.3	0.4	0.8
<b>Total</b>	<b>0</b>	<b>3.2</b>	<b>3.1</b>	<b>3.9</b>	<b>4.9</b>	<b>4.7</b>	<b>15.0</b>	<b>21.6</b>	<b>12.5</b>	<b>69.0</b>

Source: Congressional Budget Office based on data from the office that administers the ASPI.

Notes: Because not all funds are obligated during the year in which they are appropriated, annual appropriations and obligations are not equal.

ASPI = Arsenal Support Program Initiative; \* = less than \$50,000.

- a. Excludes the cost of the salaries and benefits paid to the Army employees who administer the ASPI. Those costs are paid out of the Army's operation and maintenance account.
- b. Environmental remediation includes activities such as the removal of pollutants or toxins from buildings.

of those benefits on the basis of market rates for similar services. In some instances, tenants paid to make additional improvements to the arsenal property. Tenants' investments are considered to be of benefit to the government only if they improve the arsenal property and only if the improvement remains in place when the tenant leaves the arsenal. The estimated value of those investments was based on tenants' actual expenses.

**Future Financial Benefits and Costs**

The financial benefits that the program will generate for the government in the future will depend on how much space is available and how rapidly that space is rented to commercial tenants; rental rates; tenants' payments for using government equipment and temporarily employing government personnel; and the value of tenant-provided services and investments in the arsenals' infrastructure (see Figure 4 on page 13).

Regarding space, CBO assumed that all renovations of ASPI property under way before 2011 will be completed without the need for additional appropriations. As a result of the \$87 million in funding provided through 2010 for the ASPI, CBO estimates, the Rock Island Arsenal will have a total of about 280,000 square feet

available for rent, allocated in roughly equal proportions for administrative purposes, manufacturing, and storage (see Table 6 on page 14). The Watervliet Arsenal will have approximately 240,000 square feet available for rent (with no additional space requiring renovation). CBO estimates that about 20 percent of that space will be allocated for administrative purposes, 60 percent for manufacturing, 10 percent for storage, and 10 percent for laboratories or clean rooms. Renovating the remaining arsenal space available under the ASPI—more than 400,000 square feet at the Rock Island Arsenal—would require additional appropriations; such renovations are not included in CBO's analysis. The Pine Bluff Arsenal will not renovate any property but will continue to rent space in its rail yard.

CBO estimated that the vacancy rate for properties at the arsenals will be 10 percent and that newly reconfigured spaces will be rented within two years of their renovation. CBO projected that future net rental payments (incorporating the costs to the arsenals to accommodate tenants) will equal the current average rates paid per square foot (adjusted for inflation), which range from \$1 to \$8 depending on the arsenal and type of property.



**Table 5.****Financial Benefits Generated for the Government by the ASPI, by Source, 2001 to 2009**

(Thousands of dollars)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	Total, 2001–2009
Services Provided and Investments Made by Tenants <sup>a</sup>										
Services Provided by Tenants in Lieu of Rent <sup>a</sup>	n.a.	n.a.	n.a.	n.a.	237	176	150	57	65	n.a.
Investments by Tenants in Arsenal Infrastructure <sup>a</sup>	n.a.	n.a.	n.a.	n.a.	34	149	155	9	63	n.a.
Subtotal, Services Provided and Investments Made by Tenants	340	246	85	414	271	324	305	66	128	2,180
Receipts from Leasing Arsenal Property <sup>b</sup>	40	100	167	262	383	420	570	900	1,048	3,892
Fees Paid by Tenants for Employees Hired Under the IPA <sup>c</sup>	0	0	0	0	0	0	149	148	144	441
Payments for Leasing Army Equipment	0	0	0	0	0	0	33	20	4	58
<b>Total</b>	<b>380</b>	<b>347</b>	<b>253</b>	<b>676</b>	<b>654</b>	<b>744</b>	<b>1,057</b>	<b>1,135</b>	<b>1,325</b>	<b>6,571</b>

Source: Congressional Budget Office based on data from the office that administers the ASPI.

Note: ASPI = Arsenal Support Program Initiative; IPA = Intergovernmental Personnel Act; n.a. = not applicable.

- Before 2005, data on the value of services provided by tenants in lieu of rent and on the value of tenants' investments were combined in a single category. Starting in 2005, they are shown separately.
- The numbers in the category "Receipts from Leasing Arsenal Property" represent net receipts; they incorporate the additional expenses incurred by the arsenals to accommodate commercial tenants.
- The IPA Mobility Program provides for the temporary assignment of federal employees to other organizations to facilitate cooperation between federal and nonfederal entities.

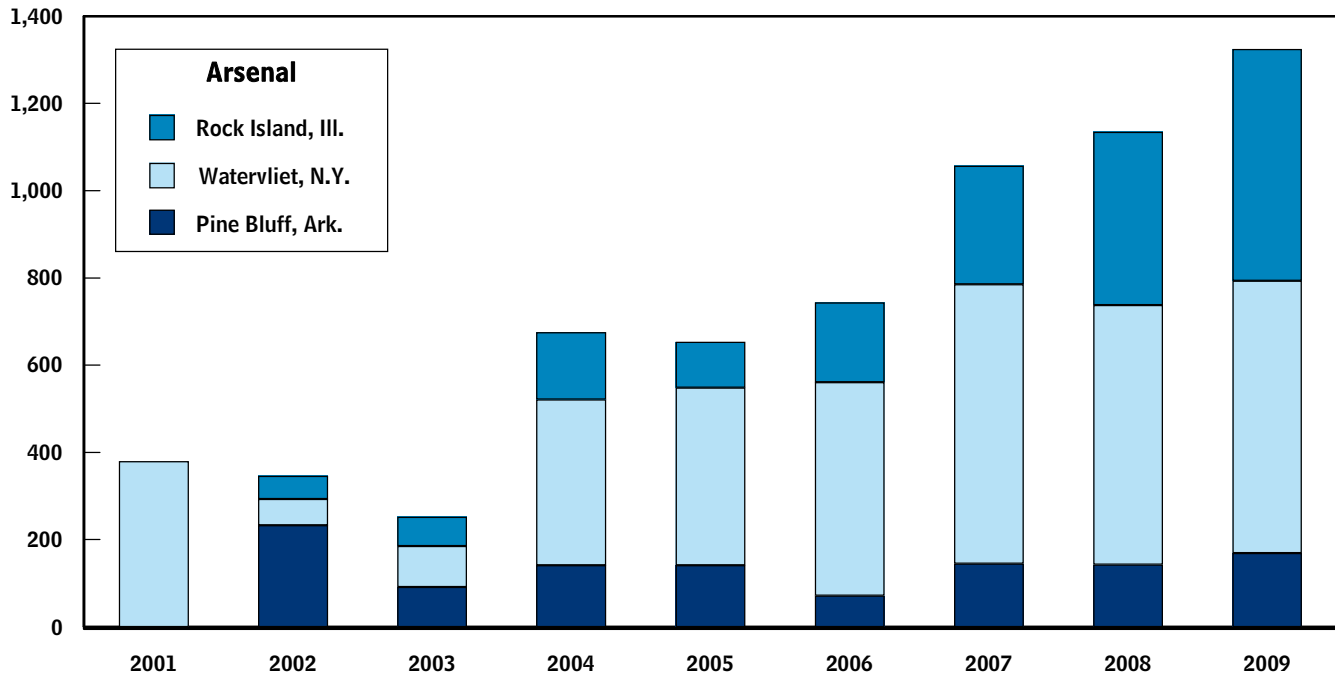
CBO assumed that, as the properties experience wear and tear over time, the rental rates that the Army can charge will gradually decline. On that basis, CBO estimated that services provided by and investments made by tenants will be worth about 50 cents annually for every square foot of space rented. Lastly, CBO estimated that fees paid by tenants to hire employees under the Intergovernmental Personnel Act Mobility Program and tenants' payments to rent Army equipment will, in combination, total \$150,000 annually.

The future costs of the ASPI will include the costs to renovate additional space, market the properties, and administer the program. (The additional costs that arsenals incur to accommodate commercial tenants, such as

providing routine maintenance and paying utility bills, are already incorporated into the net rental rates.) On the basis of prior obligations made for renovations and infrastructure improvements under the ASPI, CBO estimated that the average cost of renovating any additional space would equal \$150 per square foot. CBO estimated that, initially, costs to market the properties will total \$200,000 annually until all newly renovated properties are filled. At that point, marketing costs are expected to decline to \$20,000 annually, as tenants vacate properties on a periodic basis. Administrative costs will be \$300,000 per year, CBO estimated, including the cost of paying civilian employees to oversee the ASPI, as well as the costs of producing the annual report on the program, master plans, and other miscellaneous studies. CBO estimated

**Figure 3.****Estimated Financial Benefits Generated for the Government by the ASPI, 2001 to 2009**

(Thousands of dollars)



Source: Congressional Budget Office based on data from the office that administers the ASPI.

Note: ASPI = Arsenal Support Program Initiative.

that funds will be spent at the following rates: 50 percent within the first year of their being obligated; 75 percent within two years; and 100 percent within three years. (Because of the extended time frame being considered, however, the rate of spending did not have a pronounced effect on the results.) CBO estimated that all costs and financial benefits will grow at the rate of general inflation.

Two alternative approaches could be used to account for the cash flows that will occur beyond the period considered in the analysis—through 2075—under the assumption that no further appropriations are provided for renovations. The first approach would assume that the property will be sold at the end of the period and would incorporate the net proceeds from that future sale. The second approach would avoid an arbitrary sale date and instead project cash flows over the entire service life of the property, which CBO estimates to be 65 to 70 years, assuming a “salvage value” of zero.<sup>19</sup> CBO took the latter approach because the resale value of properties renovated under the ASPI is not clear. The commercial market for similar properties is not a useful indicator of their value,

as the Army probably would not sell individual buildings or portions of buildings at a secure location unless it closed the entire arsenal. Assigning a value to the renovated properties that was equal to the cost of replacing them would also be problematic. The vacancy of those spaces prior to commercial tenancy indicates that the Army does not presently have a need for them and would not require replacements. Certainly, the Army’s property needs could change and the Army’s use of renovated arsenal properties in the future could save the costs of constructing or renovating properties elsewhere. But the timing and magnitude of any future property needs are unknown.

For renovations already under way, CBO estimated the ASPI’s financial transactions for a period extending from the start of the program in 2001 to 2075. At that point, most of the renovated properties in the program would

19. DoD bases its funding for recapitalization of buildings on an expected average service life of 67 years. See Department of Defense, *Facilities Recapitalization Front-End Assessment* (August 2002).

**Figure 4.**

## Basis for CBO's Projections of the Financial Benefits and Costs the ASPI Will Probably Generate for the Government in the Future

(Constant 2010 dollars)

Type of Financial Benefits	Estimated Benefits
Net payments collected from tenants for leasing arsenal property	An average of \$1 to \$8 per square foot, depending on the arsenal's location and the type of property leased; payments decline by 1.5 percent per year as the property ages
Services and investments provided by tenants	50 cents per square foot annually
Fees paid by tenants for hiring employees under the IPA and for leasing Army equipment <sup>a</sup>	\$150,000 annually
Type of Costs	Estimated Costs
Marketing of vacant properties	\$200,000 annually until available space is leased, \$20,000 annually thereafter
Administration of the program <sup>b</sup>	\$300,000 annually
Renovations to additional properties (if funding continues after 2010)	\$150 per square foot

Source: Congressional Budget Office.

Notes: CBO estimated that funds would be spent at the following rates: 50 percent within the first year of their being obligated; 75 percent within two years of obligation; and 100 percent within three years. In addition, CBO estimated that all receipts generated and costs incurred would grow at the rate of inflation.

ASPI = Arsenal Support Program Initiative; IPA = Intergovernmental Personnel Act.

- The IPA Mobility Program provides for the temporary assignment of federal employees to other organizations to facilitate cooperation between federal and nonfederal entities.
- Includes the cost of the salary and benefits paid to the Army employees who administer the ASPI. Those costs are paid out of the Army's operation and maintenance account.

be between 65 and 70 years old and near the end of their useful service life. (The Army could extend the useful life of the ASPI properties by making substantial renovations to them, but those costs were not included in CBO's analysis.) When estimating the financial effects of renovations paid for using funds appropriated after 2010, CBO considered a period extending 70 years from the completion of the renovations.

### Estimating the Financial Impact of the ASPI on the Federal Government

A standard method for valuing a project that requires an up-front investment and then is expected to generate an extended stream of benefits is to calculate its net present value (NPV). Calculating the NPV involves estimating the time path of all future financial benefits and costs and then discounting them to the present to account for

**Table 6.**

### Status of Property Available for Lease at the Rock Island and Watervliet Arsenals

(Thousands of square feet)

	RIA	WVA	Total
Renovations Completed	107	131	238
Renovations to Be Completed Using Funds Appropriated Before 2011	177	108	285
Renovations Requiring Additional Appropriations After 2011	443	0	443

Source: Congressional Budget Office based on data from the Rock Island Development Group and the Arsenal Business and Technology Partnership.

Notes: The arsenals in Rock Island, Illinois, and Watervliet, New York use contracted nonprofit development groups to market space that is available for lease and to manage commercial tenants.

The arsenal in Pine Bluff, Arkansas, currently leases rail-yard space only and therefore is not represented in this table. CBO assumed that the Pine Bluff Arsenal would not renovate additional property.

RIA = Rock Island Arsenal in Illinois; WVA = Watervliet Arsenal in New York.

the fact that money in hand now is worth more than the same amount received in the future. CBO used a risk-adjusted discount rate that attaches a market price to the risk associated with future cash flows. The subsidy cost under this “fair value” approach measures what a private entity would need to be paid to voluntarily assume the benefits, costs, and risks that the government is assuming. A negative NPV would indicate a net cost to the government, whereas a positive NPV would indicate that net value was created for the government.

In particular, CBO used a discount rate for future financial benefits and costs that is equal to the estimated return that a private investor would require on a project of similar risk and duration. As an example of the risk attached to such investments in the current economic climate, the Rock Island Arsenal may not be able to find sufficient tenants to fill its available space, as there is uncertainty in the commercial real estate market and vacancy rates tend to escalate during economic downturns.

Taking into account the cost to the government of assuming risk is consistent with the Congress’s directive to CBO to evaluate the business case for the ASPI. Such a methodology provides a more complete measure of the economic subsidy associated with the project than would a calculation that treats the government’s capacity to bear risk as having no cost.<sup>20</sup> Although the government can borrow at a risk-free rate, its ability to do so depends on taxpayers’ absorbing the risk that a project’s returns will not be sufficient to cover the cost of borrowing.

Because taxpayers are effectively equity holders in the arsenals’ real estate investments, CBO used a risk premium derived from data on market investments that reflects the average return private entities would require for investing in commercial, industrial, warehouse, and office properties.<sup>21</sup> The estimated discount rate is between 4 percent and 5 percent per annum in real (inflation-adjusted) terms over the expected useful life of the properties and includes a risk premium of 1 percent to 2 percent.<sup>22</sup>

Under the assumptions that the ASPI will receive no additional appropriations for renovations after 2010 and that the government will continue to pay to market and administer the program, CBO estimates that the net present value of the program to the government is negative \$52 million.<sup>23</sup> That figure is the difference between net

20. This principle was reflected in the legislation authorizing the Troubled Asset Relief Program. That law directed CBO to use risk-adjusted discount rates in estimating the subsidy cost of the program. See Congressional Budget Office, *Report on the Troubled Asset Relief Program—March 2010* (March 2010).

21. See Joseph Gyourko and Edward Nelling, *Systematic Risk and Diversification in the Equity REIT Market* (November 1994), available at <http://finance.wharton.upenn.edu/~rlwctr/papers/9411.pdf>.

22. The time value of money before accounting for risk is captured using a real (inflation-adjusted) discount rate of 3 percent, which is equal to the interest rate that CBO projects for 10-year Treasury notes in the long run (see Congressional Budget Office, *The Long-Term Budget Outlook*, June 2010, Appendix B, pp. 73–74). The risk premium is the additional rate of return that investors require to hold assets whose returns are more variable than those of risk-less assets.

23. Even if the discount rate did not include a risk component (in other words, if the future receipts to the government were certain), the net present value of the benefits and costs of the ASPI would be negative.

present values for benefits and outlays of \$47 million and \$99 million, respectively.

Another approach to evaluating a project of this sort (and one that the Congress directed CBO to calculate for the ASPI) is to estimate the return on investment. A common measure of return on investment is a project's internal rate of return (IRR)—the average return on capital invested over a project's lifetime. An IRR that is less than the project's risk-adjusted discount rate indicates that the return on capital is insufficient to compensate for the time value of money and the cost of risk-bearing. To determine the ASPI's internal rate of return, CBO calculated the average return on capital that the government will realize given the estimated future financial benefits, the outlays to date, and the costs of administering and marketing the program through 2075. That figure was 0.2 percent—well below the 4 percent to 5 percent discount rate that CBO estimates a private investor would require.

An alternative measure of return on investment is the ratio of the net present value of the program's financial benefits to the amount invested, which gives the dollar amount of value created per dollar invested. That ratio is \$47 million over \$99 million for the ASPI for renovations made through 2010, or about 50 percent.<sup>24</sup>

If the program received additional funding for renovations after 2010, it would continue to require a government subsidy of about 50 cents for each dollar spent, CBO estimates. Thus, each 100,000 square feet of renovated space would, on average, generate a net present value of negative \$8 million.

## Economic Impact of the ASPI

The ASPI affects the economy in two ways: through the government's expenditures for the program and through the economic activity generated by commercial tenants that relocate to the arsenal regions. The economic impact of the program varies depending on the geographic sector

being analyzed; CBO considered the impact of the ASPI at both the regional and national levels.

Spending by the government and by industry generates economic activity both directly and indirectly. Purchases of goods and services directly spur economic activity that would not occur otherwise. Spending also usually has indirect effects that enhance or offset the direct effects. For instance, direct effects are enhanced when spending leads to higher income for workers who are employed because of a particular industrial activity or government policy and those workers then use their higher income to boost their consumption. Direct effects are also enhanced when a greater demand for goods and services prompts companies to increase investment spending to bolster future production. In the other direction, spending by the government and by industry can cause resources (including employees) to shift away from production at other firms or in other industries. Such indirect "crowding out" effects at least partially offset the growth in employment that results from the direct effects of additional spending by the government or the private sector.

### Impact of the ASPI on Regional Economies

The economies of the arsenal regions benefit from the government's spending for the ASPI.<sup>25</sup> Federal funding for the program pays primarily for renovating and repairing underutilized arsenal property to prepare it for lease by commercial tenants; some funds have also been used to market the properties and pay for various administrative costs. That spending creates new demand for associated products and services in the region. Because the properties being readied for use under the ASPI have been vacant prior to their lease, CBO concluded that the Army would not have renovated those properties if the program was not in effect. Almost all of that spending occurred in the Watervliet and Rock Island regions because those arsenals received the bulk of the funding for the ASPI.

The ASPI also benefits the regions in which the arsenals are located through the economic activity that commercial tenants create. When the tenants relocate to a region, they not only bring additional jobs but also create new

24. In an August 2007 report to the House and Senate Armed Services Committees, the Army stated that the "rate of return" for the ASPI through 2006 was negative 20 percent. Dividing then current estimates of receipts generated by the ASPI (\$3.1 million) by the program's costs (\$15.5 million) produced that result. See Department of the Army, *A Review of the Arsenal Support Program Initiative (ASPI) Demonstration Program* (August 2007).

25. The Watervliet region includes the following areas of New York: Albany, Schenectady, Troy, and Great Falls. The Rock Island region includes areas surrounding Davenport, Iowa, and Moline, Illinois. The Pine Bluff region of Arkansas includes areas surrounding Little Rock and North Little Rock.



demand for goods and services. But such economic effects are attributable to the ASPI only if a tenant was not already located in the region before renting space at an arsenal. Tenants who relocate within a region do not generate new economic benefits for that region because their activities are already part of the regional economy. CBO estimates that about half of the tenants participating in the ASPI were already located in the Rock Island or Watervliet regions.<sup>26</sup>

Because many relevant factors are very difficult to measure, CBO could not reliably quantify the economic impact of the ASPI within the arsenal regions. Those factors include crowding-out effects, whereby spending at the arsenals causes a shift of resources away from other businesses within the arsenal regions. For example, businesses moving into a region to participate in the program represent competition for existing firms in the region—perhaps driving up their labor costs and depressing their revenues and employment—but the magnitude of those effects is not known. Furthermore, the impact on regional economies depends on the degree to which the renovation contracts entered into under the ASPI and tenants' subsequent activities result in the consumption of goods and services produced within the region rather than in other parts of the country. Such interregional flows could not be determined with any precision.

### **Impact of the ASPI on the National Economy**

In CBO's judgment, the ASPI has had little if any net impact on the nation's economy because the program primarily causes shifts in resources from one region of the country to another.

Beginning with the public sector, the government's spending for the ASPI may or may not have increased total government spending. Because funding for the ASPI has been subject to the constraints that apply to the annual appropriation process, its funding may have

displaced appropriations that would have been provided to DoD for different purposes or to other federal agencies. If so, any positive macroeconomic effects from the additional ASPI spending would have been offset by the impact of reducing spending for other purposes.

Even if spending for the ASPI added to federal deficits between 2002 and 2010, its positive macroeconomic effects were probably limited to periods when economic activity was weak and unemployment high. During much of the program's existence, however, the economy was operating at or near capacity. To reduce the risk of excessive inflation under those circumstances, the Federal Reserve generally considers information about the government's budget when it makes decisions about interest rates and other monetary policy actions, with the intention of offsetting the impact on the economy of short-term fluctuations in federal deficits. As a result, additional government spending under those circumstances would not produce sustained increases in overall economic activity and employment. Over the long term, the increased debt necessary to finance added spending tends to reduce the stock of productive private capital, which would diminish economic growth (by an amount that would be small relative to the amount of additional spending).

Any effect on the national economy that might be attributable to the activity of the arsenals' tenants is also minimal. Nearly all of the tenants who formerly leased or currently are leasing space at the arsenals were already located in the United States before they elected to participate in the program. Although the relocation of those tenants probably created an economic gain in the arsenal regions, it also probably resulted in economic losses in the regions that the tenants left. Therefore, the economic activity and employment of those tenants represents a shift of resources from one region of the country to another, resulting in no net economic impact nationally.<sup>27</sup>

26. CBO did not investigate whether a tenant's decision to move to the arsenal region was a direct result of the ASPI. In some cases, a tenant might have relocated to that region even if the ASPI had not been in place.

27. CBO did not estimate relocation costs, which if included would have resulted in a slight negative national impact of relocation from other regions.